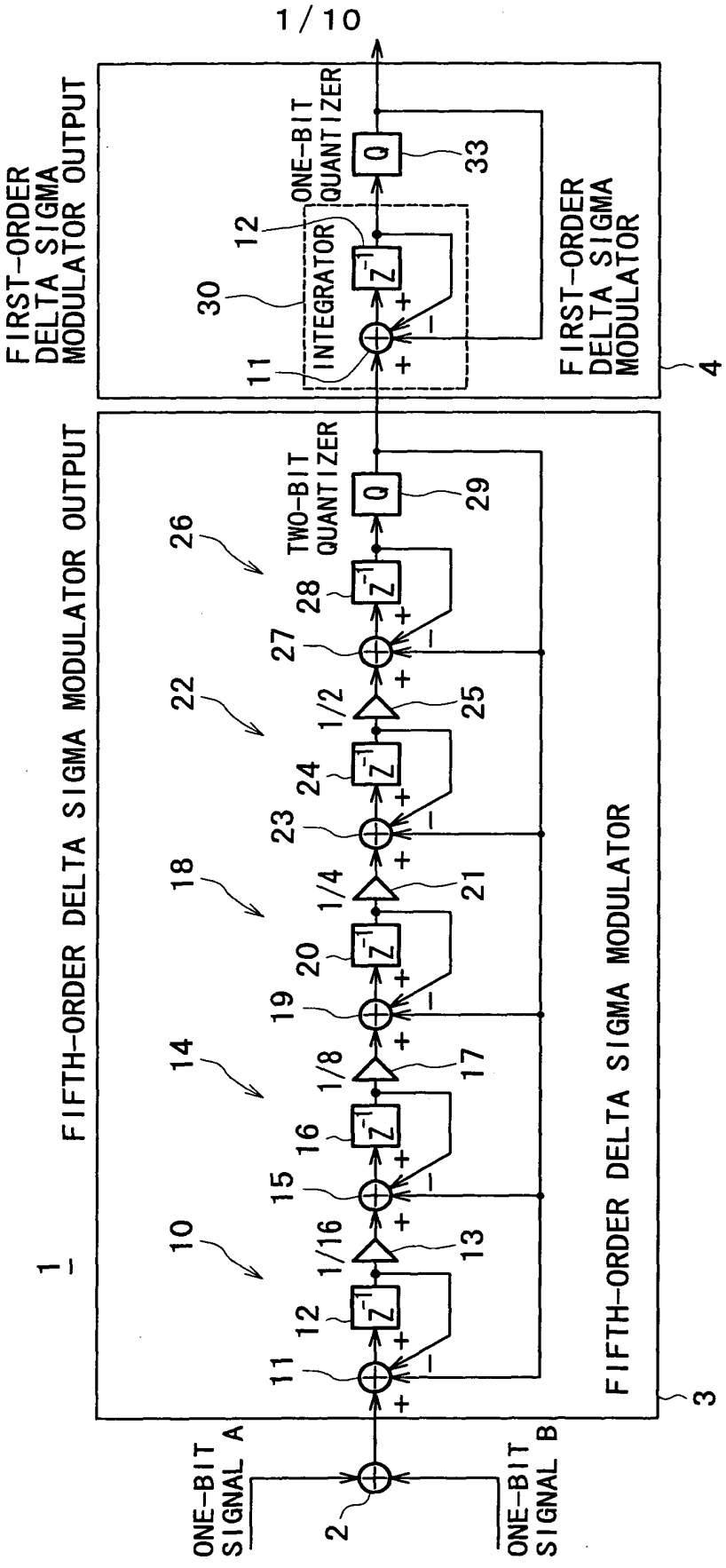
503P0982

FIG. 1



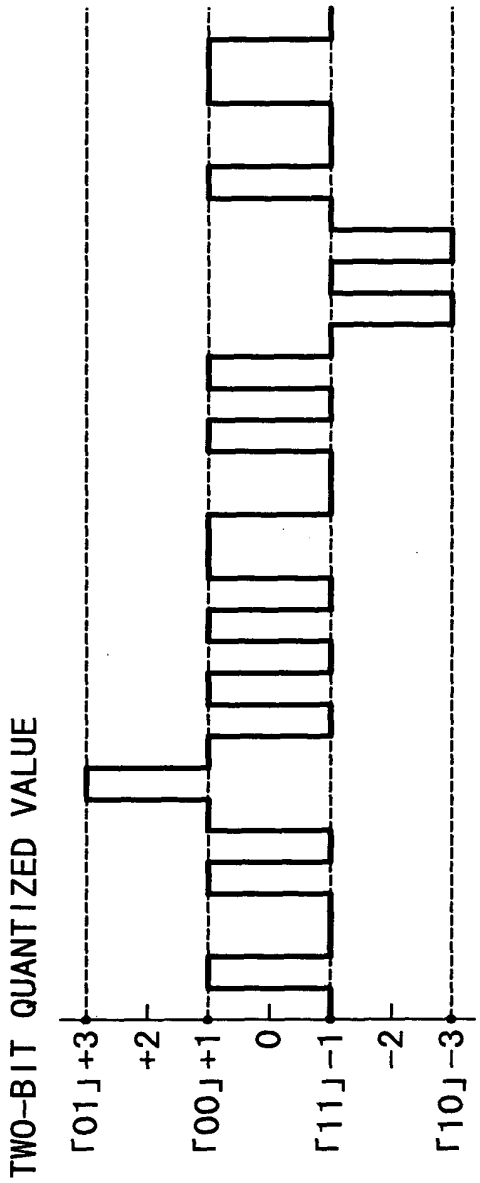

TWO-BIT QUANTIZED VALUE
[01] +3
+2
[00] +1
0
[11] −1
−2
[10] −3

FIG. 2A

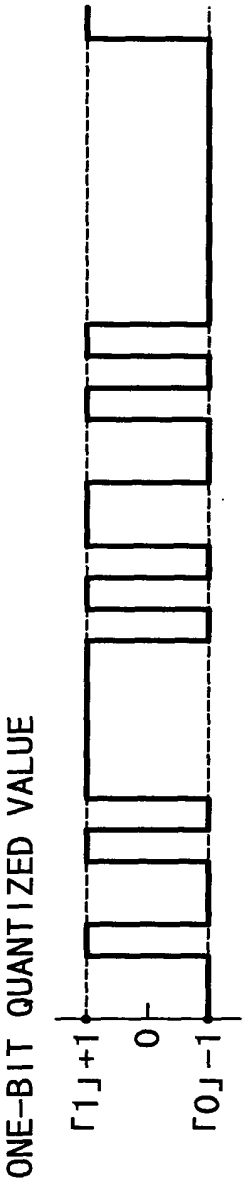

ONE-BIT QUANTIZED VALUE
[1] +1
0
[0] −1

FIG. 2B

FIG. 3A

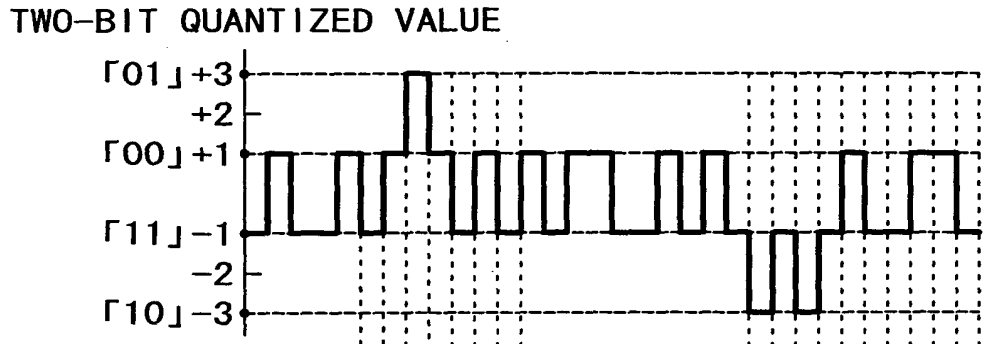


FIG. 3B

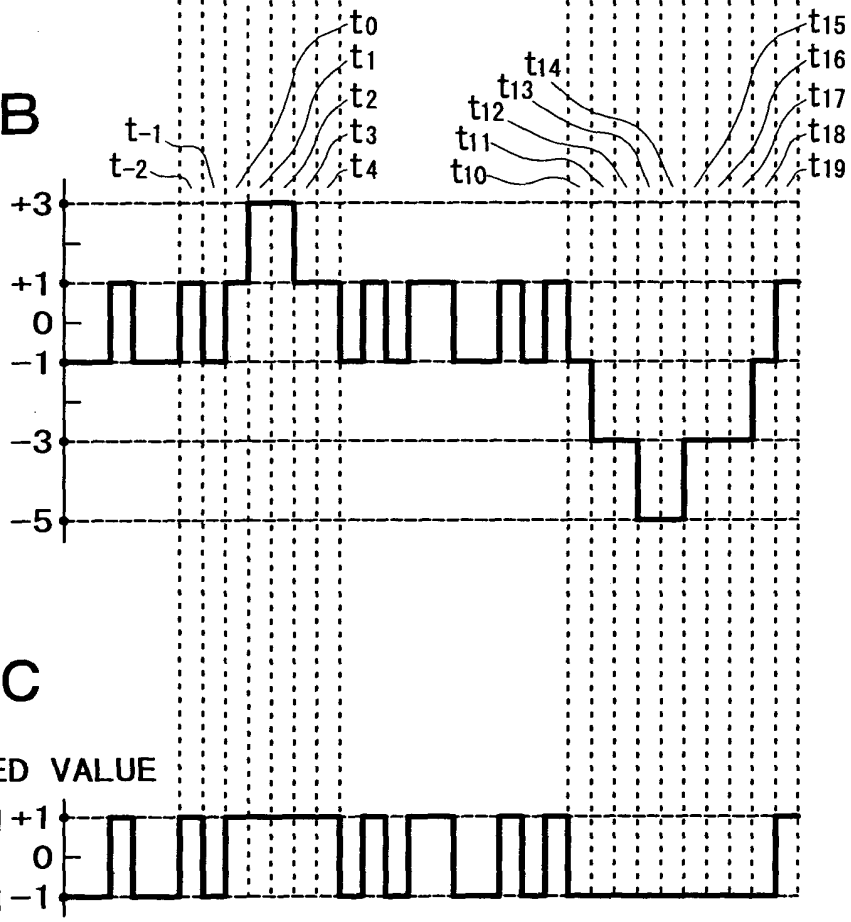


FIG. 3C

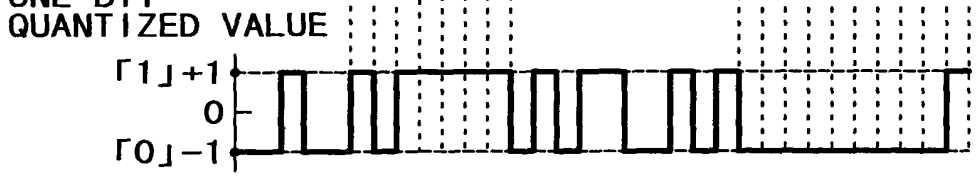


FIG. 4

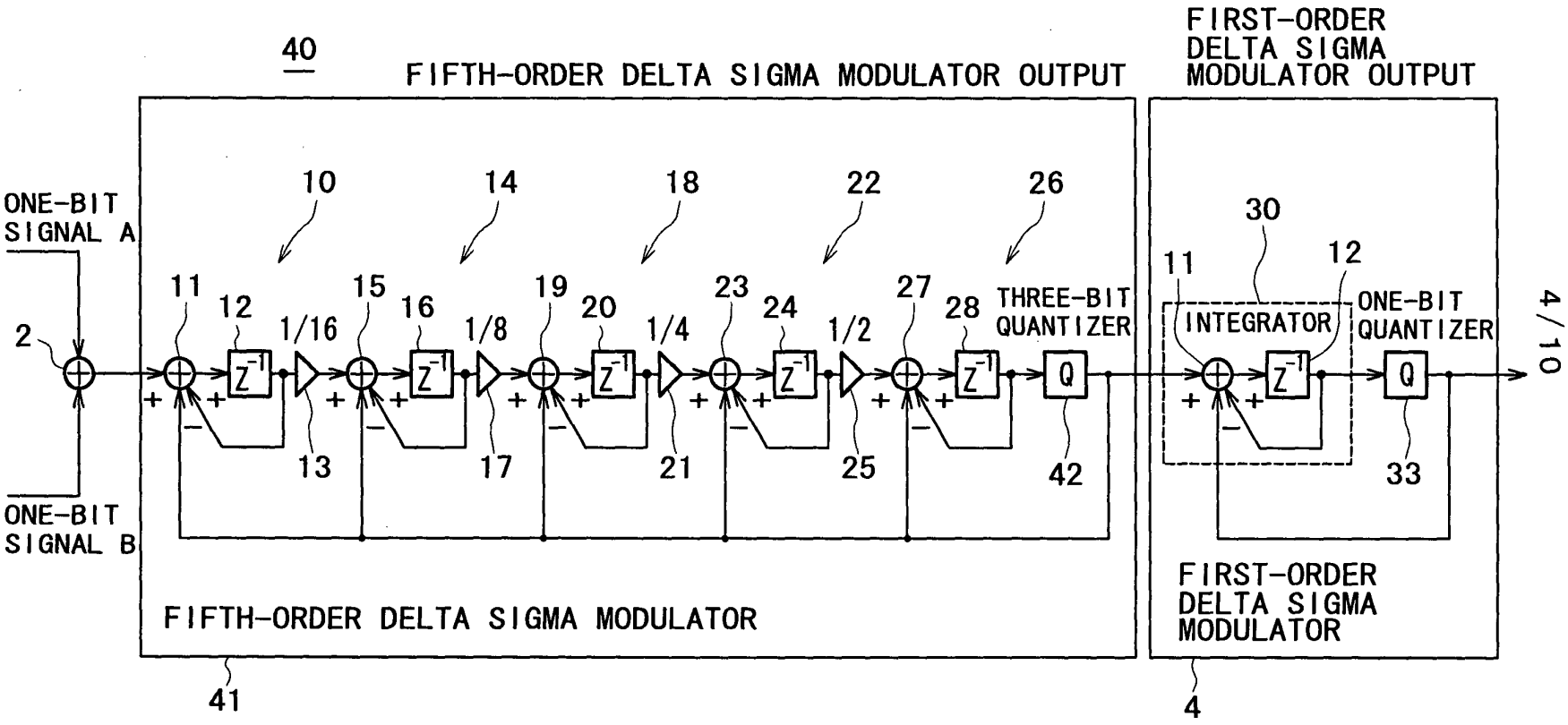
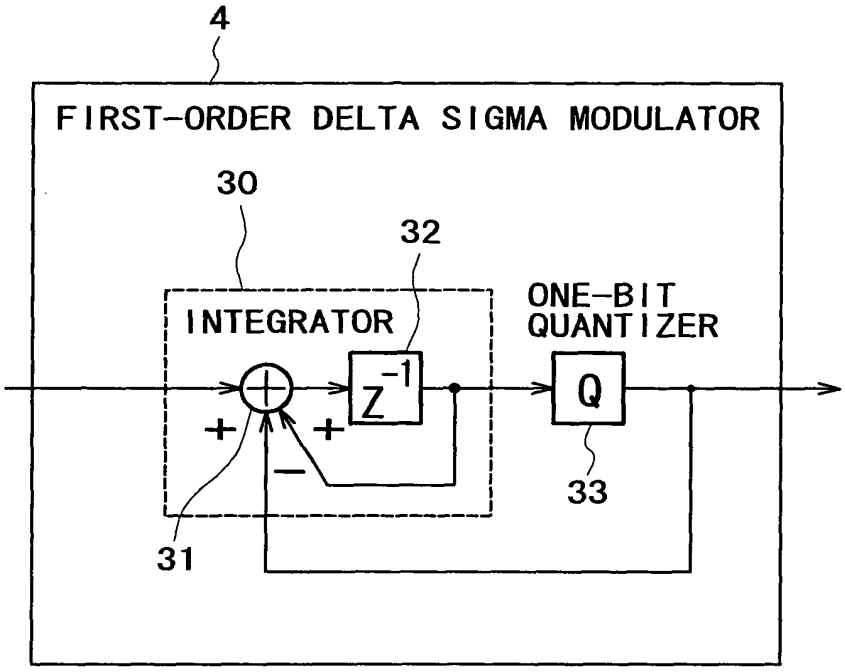

40
FIFTH-ORDER DELTA SIGMA MODULATOR OUTPUT
FIRST-ORDER DELTA SIGMA MODULATOR OUTPUT
ONE-BIT SIGNAL A
ONE-BIT SIGNAL B
2
10
14
18
22
26
11
12
15
16
19
20
23
24
27
28
1/16
1/8
1/4
1/2
THREE-BIT QUANTIZER
13
17
21
25
42
30
INTEGRATOR
ONE-BIT QUANTIZER
33
FIFTH-ORDER DELTA SIGMA MODULATOR
FIRST-ORDER DELTA SIGMA MODULATOR
41
4
4/10

FIG. 5


4
FIRST-ORDER DELTA SIGMA MODULATOR
30
32
INTEGRATOR
ONE-BIT
QUANTIZER
Z^{-1}
Q
+
+
−
31
33

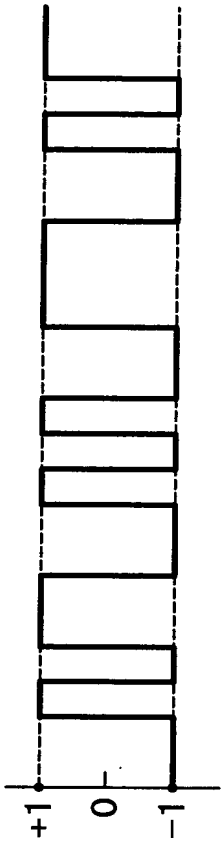


FIG. 6A

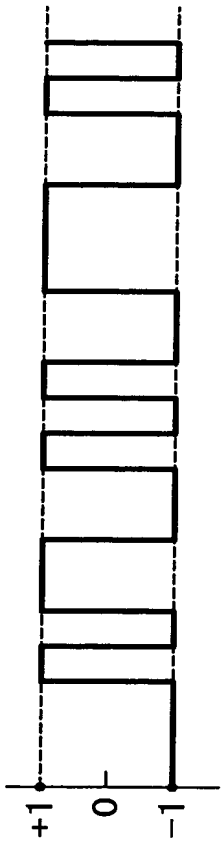


FIG. 6B

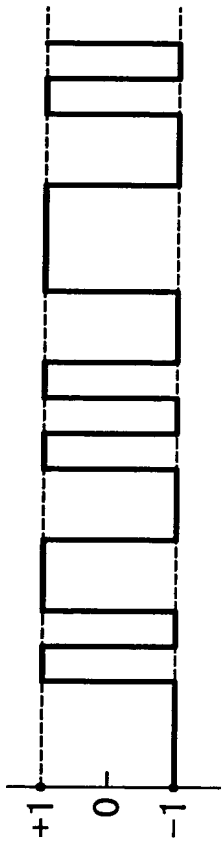


FIG. 6C

FIG. 7

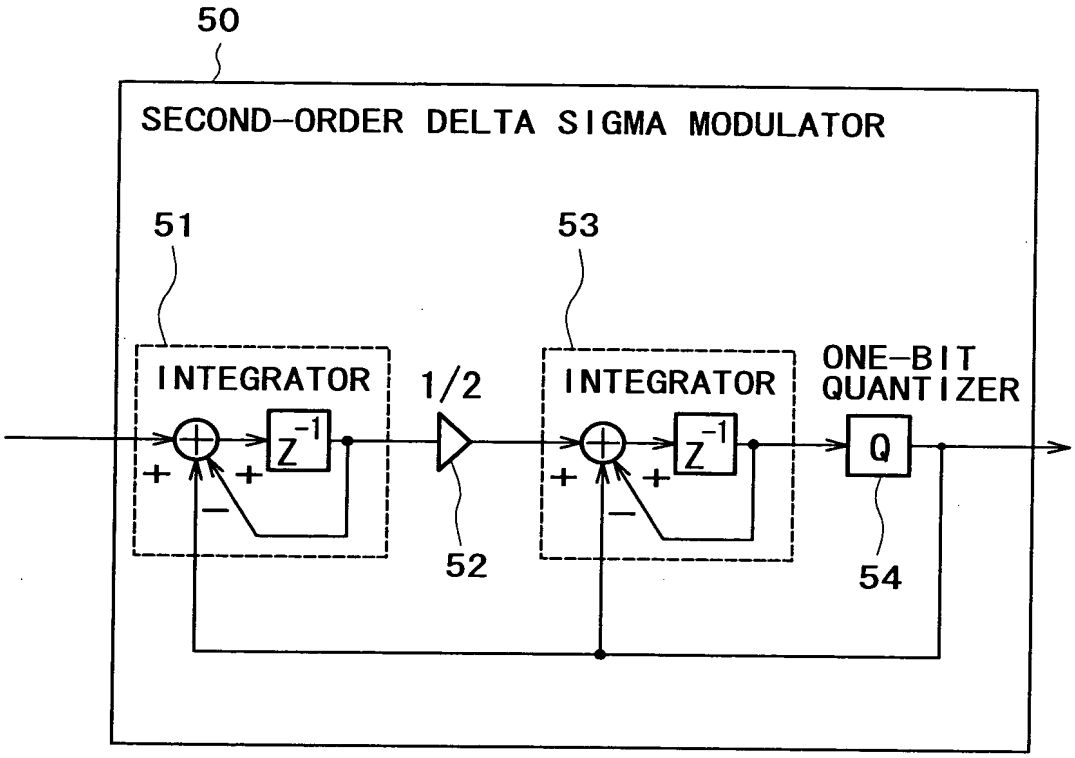

50
SECOND-ORDER DELTA SIGMA MODULATOR
51
53
INTEGRATOR
1/2
INTEGRATOR
ONE-BIT
QUANTIZER
Z^{-1}
Z^{-1}
Q
+
+
−
+
+
−
52
54

FIG. 8A

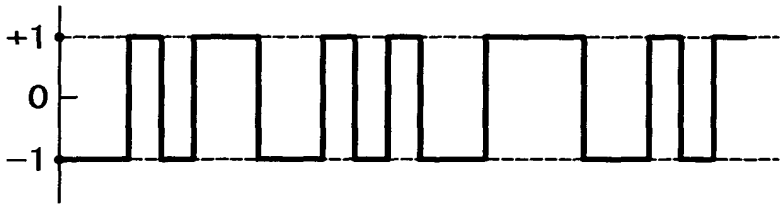


FIG. 8B

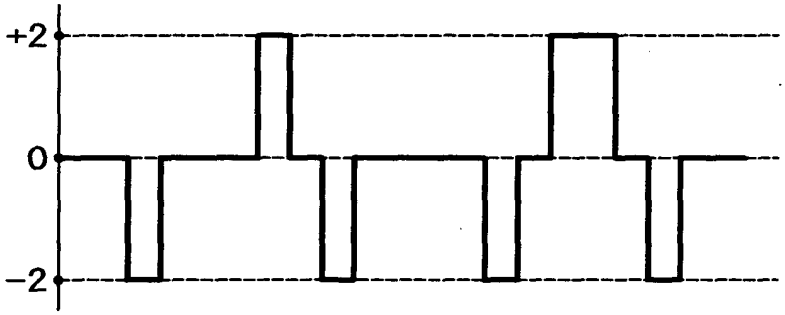


FIG. 8C

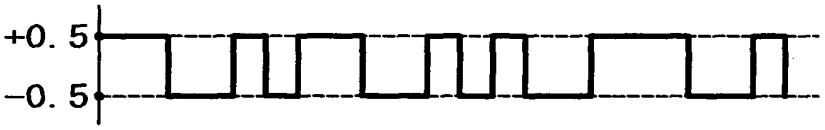


FIG. 8D

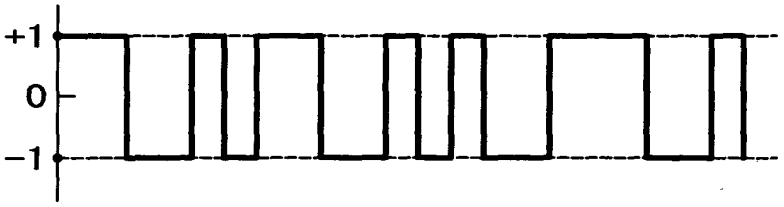


FIG. 9

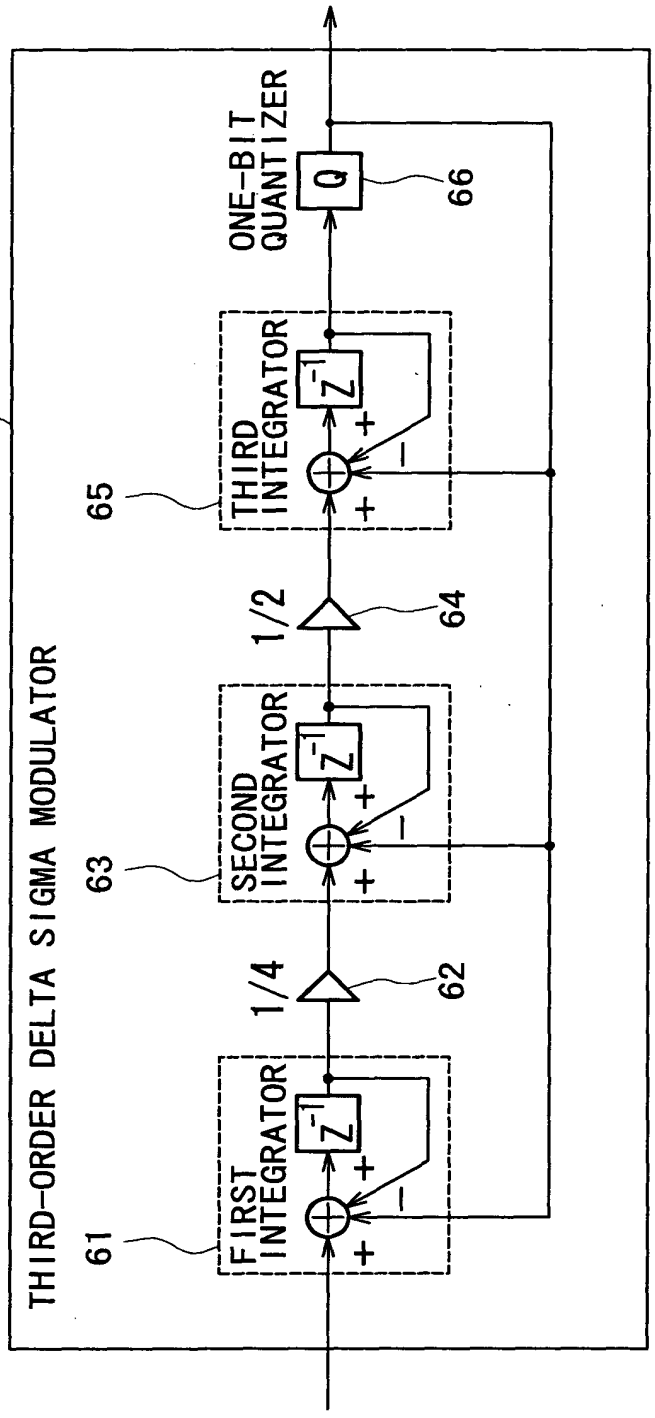

60
THIRD-ORDER DELTA SIGMA MODULATOR
61
FIRST INTEGRATOR
1/4
62
63
SECOND INTEGRATOR
1/2
64
65
THIRD INTEGRATOR
ONE-BIT QUANTIZER
Q
66
Z-1
+
−

FIG. 10A

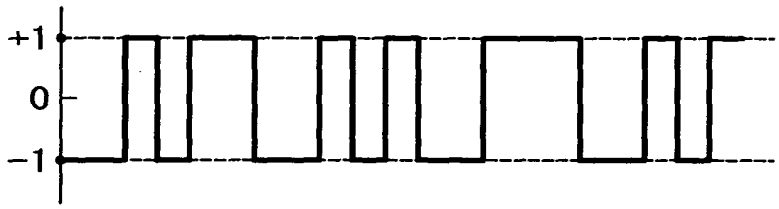


FIG. 10B

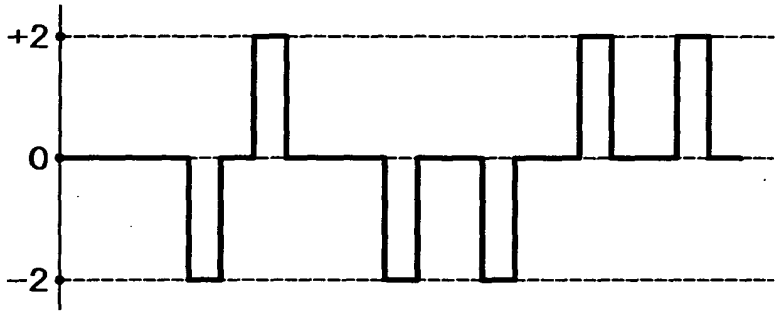


FIG. 10C

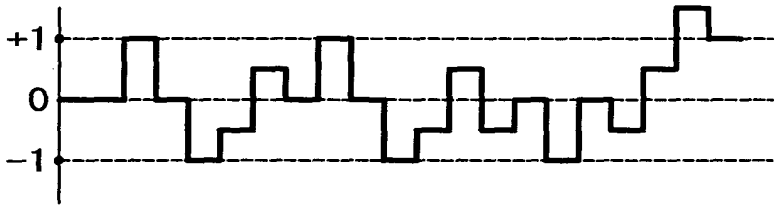


FIG. 10D

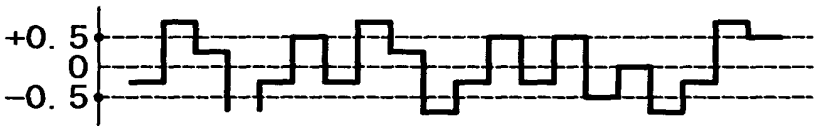
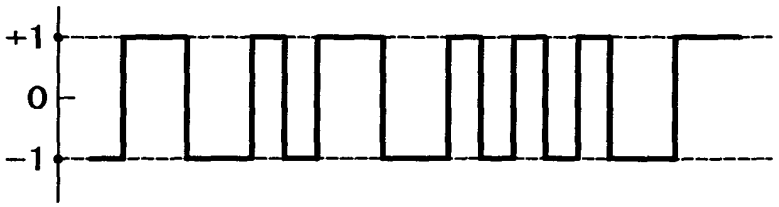



FIG. 10E